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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A process for removing DOC from a concentrated salt solution containing DOC, said process comprising;
 - 5 (i) contacting the salt solution with a coagulant and/or flocculant such that the DOC becomes insoluble in the salt solution; and
 - (ii) removing the insoluble DOC from the salt solution.
2. A process according to claim 1 wherein the concentrated salt solution containing
10 DOC is a solution produced as a by-product from regenerating ion-exchange resin which have been previously used to remove DOC from raw water.
3. An industrial scale process for the removal of DOC from water containing DOC, said process comprising:
 - 15 (i) contacting the water with ion-exchange resin to enable adsorption of DOC on the resin;
 - (ii) separating the resin loaded with DOC from the water;
 - (iii) regenerating at least a portion of the separated resin by contacting it with a concentrated salt solution containing a source of anions such that the anions
20 exchange with DOC adsorbed on the resin;
 - (iv) separating the regenerated resin from the concentrated salt solution containing DOC;
 - (v) contacting the solution from step (iv) with a coagulant and/or flocculant such that the DOC becomes insoluble in the salt solution; and
 - 25 (vi) removing insoluble DOC from the salt solution.
4. A process according to claim 3 wherein the ion exchange resin has a density greater than the water and the resin loaded with DOC is separated from the water by settling.
- 30 5. A process according to claim 4 wherein the settled resin is collected by vacuum collection.

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6. A process according to claim 3 wherein the regenerated resin is separated from the concentrated salt solution containing DOC by filtering through a mesh of appropriate porosity.

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7. An industrial scale process for the removal of DOC from water containing DOC, said process comprising:

- (i) contacting the water with ion-exchange resin to enable adsorption of DOC on the resin;
- 10 (ii) separating the resin loaded with DOC from the water;
- (iii) regenerating at least a portion of the separated resin and recycling the remainder to step (i), wherein the resin is regenerated by contacting it with a concentrated salt solution containing a source of anions such that the anions exchange with the DOC adsorbed on the resin;
- 15 (iv) separating the regenerated resin from the concentrated salt solution containing DOC;
- (v) recycling the regenerated resin back to step (i);
- (vi) contacting the separated salt solution from step (iv) with a coagulant and/or flocculant such that the DOC becomes insoluble in the salt solution;
- 20 (vii) removing insoluble DOC from the salt solution to regenerate concentrated salt solution; and
- (viii) recycling concentrated salt solution back to step (iii).

8. A process according to claim 3 or claim 7 which is used in the treatment of a raw
25 water source to produce potable water for distribution and consumption.

9. A process according to claim 7 wherein the regenerated concentrated salt solution obtained from step (vii) is treated with a base.

30 10. A process according to claim 7 wherein the regenerated concentrated salt solution obtained from step (vii) has a pH of 7-11.

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11. A process according to any one of claims 2 to 10 wherein the ion-exchange resin is magnetic ion-exchange resin.
- 5 12. A process according to claim 11 wherein the magnetic ion-exchange resin is MIEX[®] resin.
13. A process according to any one of claims 1, 3 or 7 wherein the coagulant/focculant is selected from aluminium sulphate (alum), polyaluminium chloride, aluminium
10 chlorohydrate, polyaluminium chlorohydrate, ferric chloride, ferric sulphate, polymerised ferric sulfate, polyDADMACS, polyacrylamide emulsion polymers, coagulant aids, and filter aids.
14. A process according to claim 13 wherein the focculant/coagulant is selected from
15 Ferric chloride, Ferric sulphate, polymerised Ferric sulphate and Aluminium sulphate (Alum).
15. A process according to any one of claim 1, 3 or 7 wherein the concentrated salt solution is a concentrated inorganic salt solution selected from NaCl, KCl, NH₄Cl, CaCl₂
20 and MgCl₂ or mixtures thereof.
16. A process according to claim 15 wherein the concentrated salt solution is a brine solution.
- 25 17. A process according to claim 15 or claim 16 wherein the salt solution has a concentration of greater than 1.5M, or 100 grams of total dissolved salt in a mixture of salts per litre of water.
18. A process according to any one of claims 1, 3 or 7 wherein the step of contacting
30 the salt solution with a coagulant and/or flocculant is conducted under acidic conditions.

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19. A process according to claim 18 wherein the pH is less than 3.

20. A process according to any one of claims 1 to 17 wherein the step of contacting the salt solution with a coagulant and/or flocculant further includes the addition of an acid.

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21. A process according to claim 20 wherein the acid is selected from HCl, HNO₃ and H₂SO₄.

22. A process according to claim 21 wherein the acid is HCl.

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23. A process according to any one of claims 20 to 22 wherein the pH is about 2.

24. A process according to any one of claims 1 to 23 wherein the insoluble DOC is removed from the salt solution by filtration.

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25. A process according to claim 24 wherein the filtration method is a plate and frame filter process.

26. A process according to any one of claims 1 to 25 wherein the DOC which is removed from the salt solution is used as a fertiliser, feed-stock, soil conditioner, or health supplement.

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27. A process according to any one of claims 1 to 25 wherein the DOC which is removed from the salt solution is used as land fill.

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